National Institute of Environmental Health Sciences

Primary, secondary and tertiary effects of eco-climatic change: The medical response

Author(s): Butler CD, Harley D
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Abstract:

Climatic and ecological change threaten human health globally. Manifestations include lost species, vanishing glaciers and more frequent heavy rain. In the second half of this century, accelerating sea level rise is likely to cause crop loss, and population dislocation. These problems may be magnified by dysfunctional human responses, including conflict. The population health consequences of these events can be classified as primary, secondary and tertiary. Primary signs include the acute and chronic stress of heat waves, and trauma from increased bush fires and flooding. Secondary signs are indirect, such as an altered distribution of arthropod vectors, intermediate hosts and pathogens that will produce changes in the epidemiology of many infectious diseases. More severe future health consequences of climate change are classified here as tertiary effects. If moderate or severe climate change scenarios prove accurate then these manifestations will occur over large areas, and could include famine, war and significant population displacement. Such effects would threaten governance and health. The health professions must respond to these challenges, especially the task of recognising and seeking to minimise tertiary health consequences. The gap between what we know and what we need to know concerning these issues can be narrowed by a new field of medical practice. The framework for this emerging discipline includes climate change, ecology and global health. Combined, these dimensions may be called ecomedicine. Actions to reduce individual emissions, to promote active transport (with its 'co-benefit' of preventing chronic disease), and involvement in group action to protect the environment and to prevent war, informed by understanding of the health of individual patients and populations, will be central to the practice of ecomedicine.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Human Conflict/Displacement, Human Conflict/Displacement, Temperature

Extreme Weather Event: Flooding, Wildfires

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact, Infectious Disease

Infectious Disease: General Infectious Disease

Medical Community Engagement:

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content